# Geospatial Repository for Analysis and Safety Planning

## Single Computer Installation Guide

**Developed by:**

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**and**

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*SCHOOL OF*
ENGINEERING
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*N.I.J.'s*
*Mapping & Analysis for Public Safety*

# Table of Contents

# Index of Figures

## Introduction

The GRASP Setup Guide is a document that stems from the non-trivial task of setting up the GRASP website on a server. The following will document all of the procedures that need to be taken to setup the GRASP system to be used for production. This document will detail all of the software installation that must occur, all of the hardware and software settings that need to be changed, and finally how to migrate the GRASP website from one server to another so that the system may function as expected.

This document will follow a time series progression, meaning that all directions will be in the order that they should be completed. It is recommended that one not move on to another step until all previous steps are completed.

## Step One: Initial File Transfer and Directory Setup

This section will step through the initial phase of GRASP installation onto the server. In order to begin the installation, begin by inserting the GRASP CD-ROM into your computer and browse to its root directory. Once you locate the files, begin by copying the "GRASP" and "GRASP Database" directories from the CD onto your local computer.

Copy necessary files onto the local machine

1.1. Create a directory for GRASP Files

Recommend a directory on the hard drive called C:\GRASP

1.2. Create a directory for the GRASP Database

**IMPORTANT:**

This must be outside of the general GRASP folder.

Recommend a directory on the hard drive called C:\GRASP Database

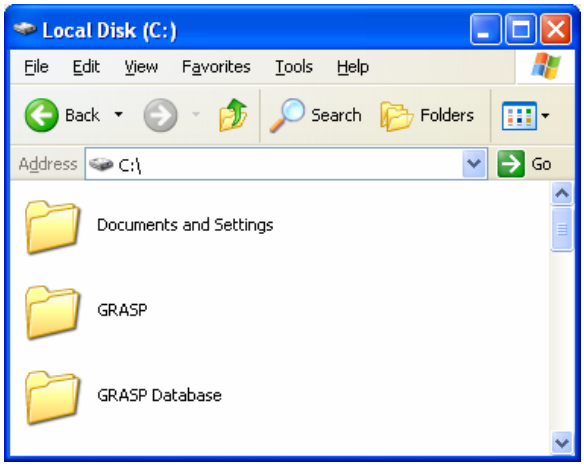


**Figure 1: Example Setup of Directory Structure**

1.3. Navigate to the installation CD on your server.

1.3.1. Copy all of the necessary files from the GRASP folder into the correlating directory on the local machine

1.3.2. Copy all of the necessary files from the GRASP Database folder into its respective directory.

**IMPORTANT:**

Based on the location of the database, this transfer can involve file movements.

Please pay attention to the directory path to the location where the files are stored.

## Step Two: Modifying Files to Correct Directory Structure

A few of the files need to be modified manually to reflect system properties.

2.1 This step is only required if in Step One you chose a different directory structure than recommended (C:\GRASP and C:\GRASP Database). Once all of the files are copied, there are several files that need to have their directory structure updated: global.asa, DatabasePath.asp, DownloadTranslator.vbs, and UploadTranslator.vbs

***Change global.asa to reflect proper directory structure***

2.1.1. Eleven file paths must be changed to whatever directory structure the user has chosen.

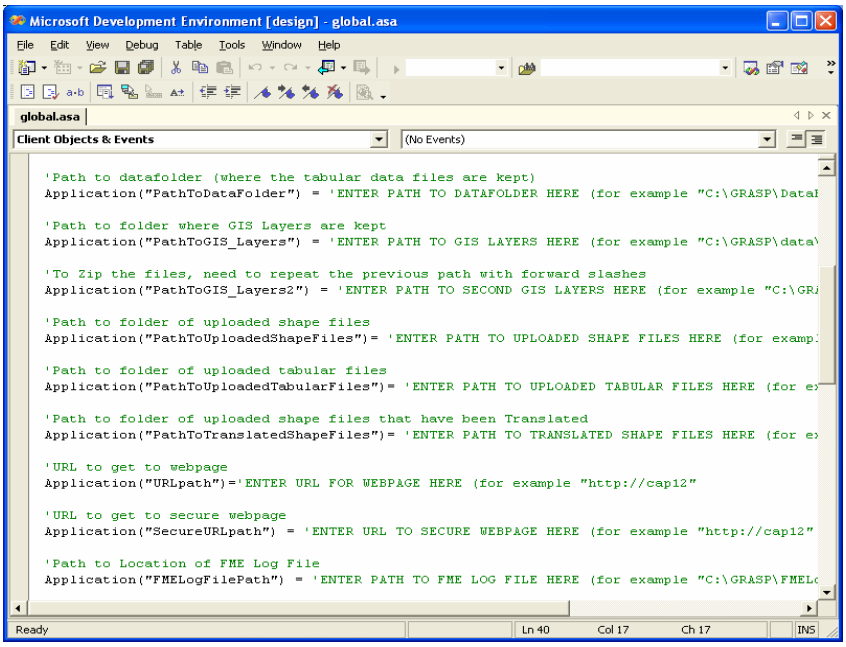


**Figure 2: File path changes that need to be made to global.asa file**

2.1.2. Also, near the bottom of the document, the variable *GRASPAdminEmail* can be set to the administrative email account for managing the system

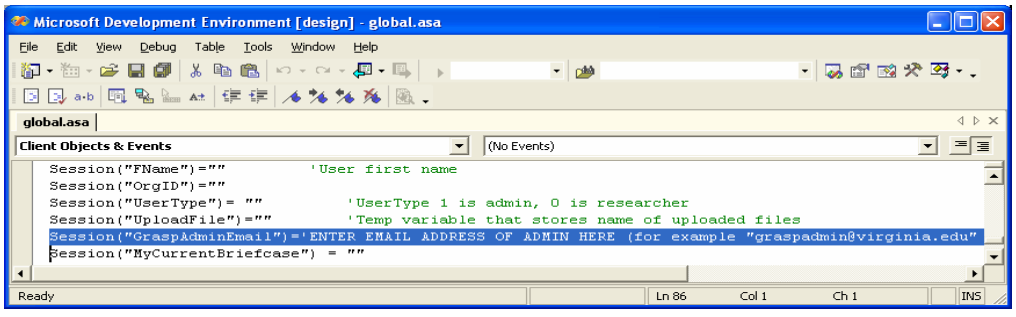


**Figure 3: Admin email account change**

***Change DatabasePath.asp to reflect proper directory structure***

2.1.3 Update the .asp file to reflect the proper directory structure. If the new machines directory structure is the same as the recommended setup, no changes are necessary.

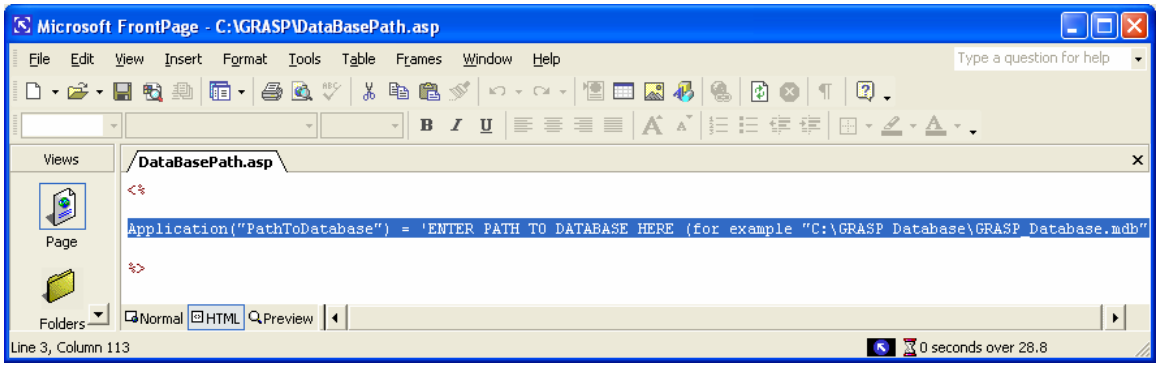


**Figure 4: Database Path that must be changed on DatabasePath.asp**

***Change DownloadTranslator.vbs to reflect proper directory structure***

2.1.4 Three file paths must be changed to whatever directory structure the user has chosen. Also, the email address of the site Administrator must be changed.

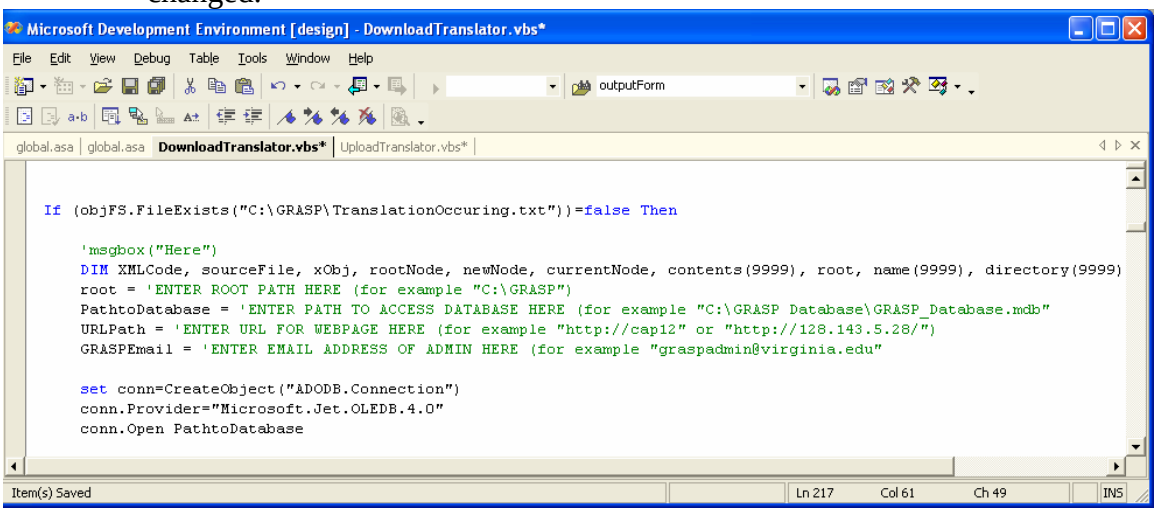


**Figure 5: Changes that need to be made in DownloadTranslator.vbs**

2.1.5 Additionally, the path to the ogr2ogr file must be changed to the correct directory structure.

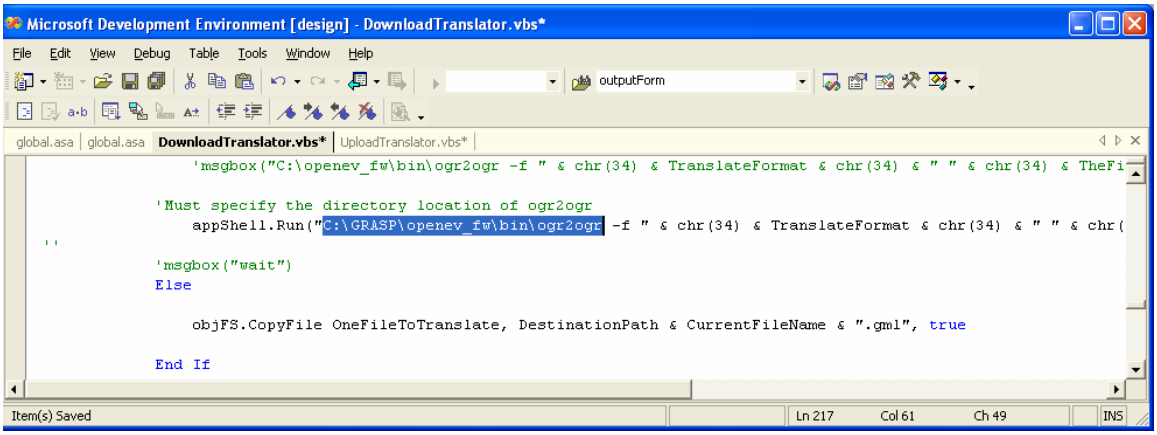


**Figure 6: ogr2ogr directory path change to DownloadTranslator.vbs**

***Change UploadTranslator.vbs to reflect proper directory structure***

2.1.6 In Step 1 of the UploadTranslator.vbs, three file paths must be changed to whatever directory structure the user has chosen. The changes are seen in the figures below

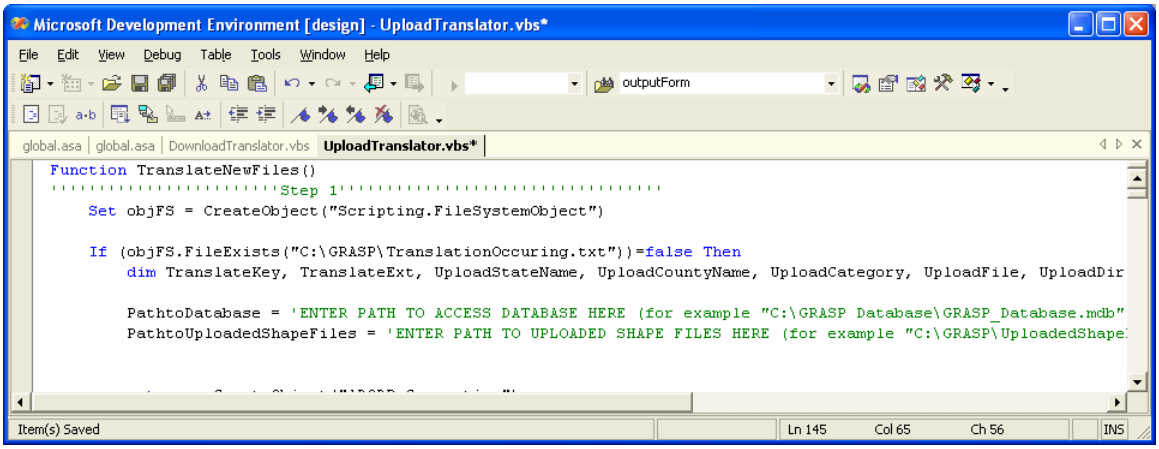


**Figure 7: Directory structure changes: PathtoDatabase and PathtoUploadedShapeFiles**

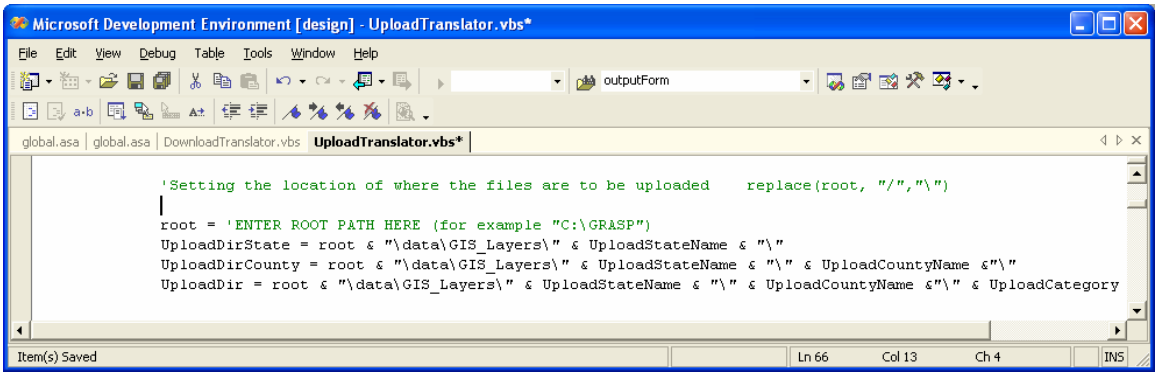


**Figure 8: Directory structure changes: root**

2.1.7 In Step 2 of UploadTranslator.vbs, the directory location of the file ogr2ogr must be specified. This is the executable file that does the translating.

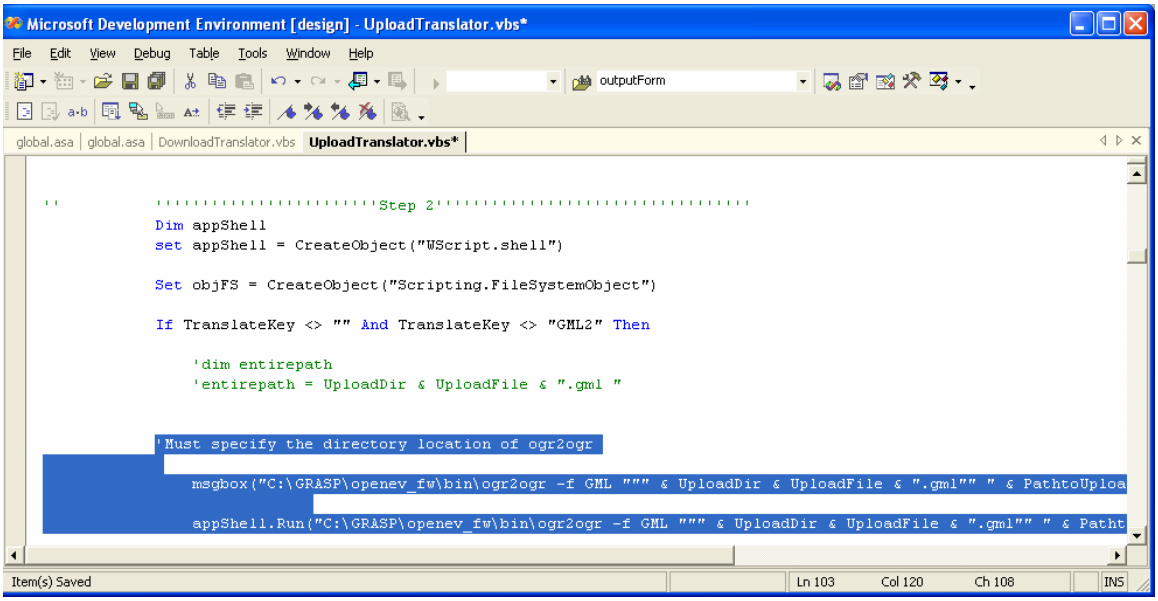


**Figure 9: ogr2ogr directory path change to UploadTranslator.vbs**

2.1.8 In Step 4 of UploadTranslator.vbs, the directory location of the application "msxsl" must be specified. This is the application that translates to SVG.

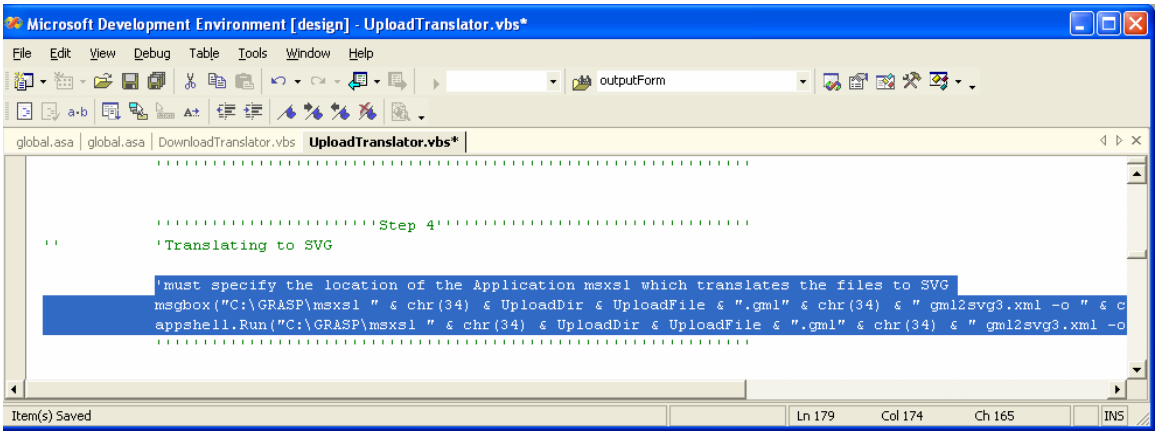


**Figure 10: msxsl application directory path change to UploadTranslator.vbs**

2.2 Two files need to be changed to reflect the domain name or IP address of the server running the website: United_States.js and State_maps.js. If the recommended directory structure was used, these files can be found in the following file paths:

C:\GRASP\data\United_States.js
C:\GRASP\data\State_maps\State_maps.js

2.2.1 For both files, within the function NewWin, change the web address to the correct domain or IP address.

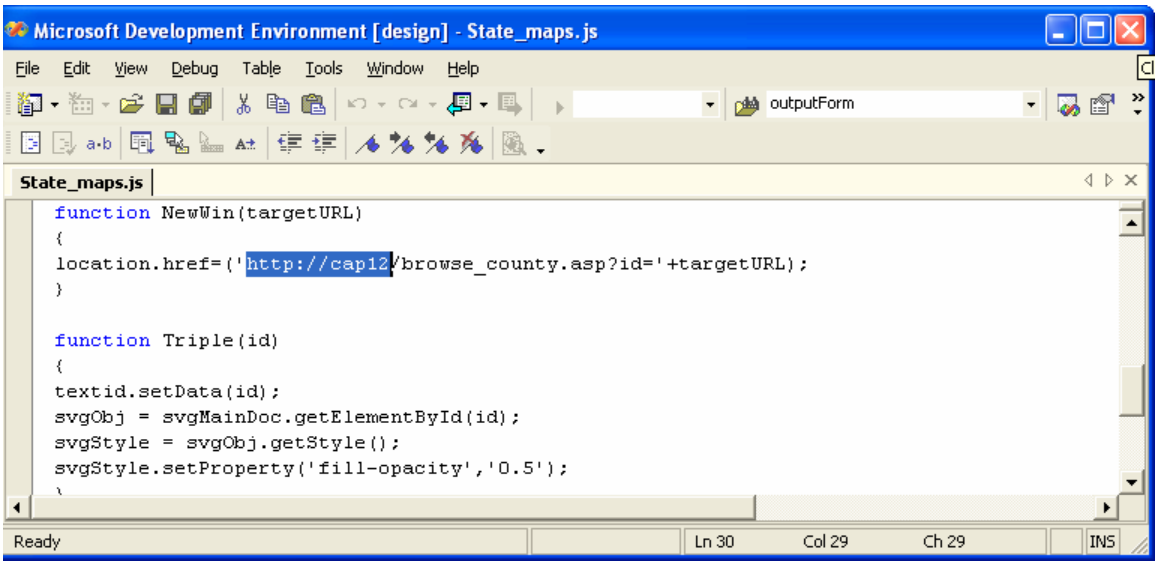


**Figure 11: Changing State_maps.js and United_States.js to reflect the correct IP address or domain name**

***Summary*** of changes that needed according to the user chosen directory structure:

| Variables to be modified in global.asa during GRASP Installation | | |
|---|---|---|
| *Variable Name* | *Description* | *Example* |
| **PathToRoot** | Directory path to root GRASP file | C:\GRASP |
| **PathToMetaData** | Directory path to metadata file | C:\GRASP\metadata |
| **PathToDatabase** | Directory path to GRASP database | C:\GRASP Database\GRASP_Database.mdb |
| **PathToDataFolder** | Directory path to the DataFolder | C:\GRASP\DataFolder |
| **PathToGIS_Layers** | Directory path file storing GIS layers | C:\GRASP\data\GIS_Layers |
| **PathToGIS_Layers2** | Directory path to second file storing GIS layers | C:\GRASP\data\GIS_Layers |
| **PathToUploadedShapeFiles** | Directory path file storing uploaded shape files | C:\GRASP\UploadedShapeFiles |
| **PathToUploadedTabularFiles** | Directory path file storing uploaded tabular files | C:\GRASP\UploadedTabularFiles |
| **PathToTranslatedShapeFiles** | Directory path file storing translated files | C:\GRASP\UploadedShapeFiles\TranslatedFiles |
| **URLPath** | URL to Webpage | http://grasp.sys.virginia.edu |
| **SecureURLPath** | URL to Secure Webpage | https://grasp.sys.virginia.edu |
| **FMELogFilePath** | NEED TO CHANGE | |
| **GraspAdminEmail** | Email Address of GRASP Administrator | graspadmin@virginia.edu |

| Variables to be modified in DataBasePath.asp during GRASP Installation | | |
|---|---|---|
| *Variable Name* | *Description* | *Example* |
| **PathToDatabase** | Directory path to GRASP database | C:\GRASP Database\GRASP_Database.mdb |

| Variables to be modified in DownloadTranslator.vbs during GRASP Installation | | |
|---|---|---|
| *Variable Name* | *Description* | *Example* |
| **root** | Directory path to root GRASP file | C:\GRASP |
| **PathtoDatabase** | Directory path to GRASP database | C:\GRASP Database\GRASP_Database.mdb |
| **URLPath** | URL to Webpage | http://grasp.sys.virginia.edu |
| **GraspAdminEmail** | Email Address of GRASP Administrator | graspadmin@virginia.edu |
| **Path to ogr2ogr.exe** | The path to the ogr2ogr executable file | C:\GRASP\openev_fw\bin\ogr2ogr |

| Variables to be modified in UploadTranslator.vbs during GRASP Installation | | |
|---|---|---|
| *Variable Name* | *Description* | *Example* |
| **PathtoDatabase** | Directory path to GRASP database | C:\GRASP Database\GRASP_Database.mdb |
| **PathtoUploadedShapeFiles** | Directory path file storing uploaded shape files | C:\GRASP\UploadedShapeFiles |
| **root** | Directory path to root GRASP file | C:\GRASP |
| **Path to ogr2ogr.exe** | The path to the ogr2ogr executable file | C:\GRASP\openev_fw\bin\ogr2ogr |
| **Path to msxsl application** | The path to the msxsl application | C:\GRASP\msxsl |

**Figure 12: Summary of Changes to global.asa, DataBasePath.asp, DownloadTranslator.vbs, and UploadTranslator.vbs files**

## Step Three: Initializing and Managing Internet Information Services

This step will help to setup and manage the GRASP website from the local machine.

**IMPORTANT:** Verify Internet Information Services (IIS) is installed
YES: Proceed to Step 2.1
NO: Install IIS for your Windows based Operating System

3.1 Open Internet Information Services

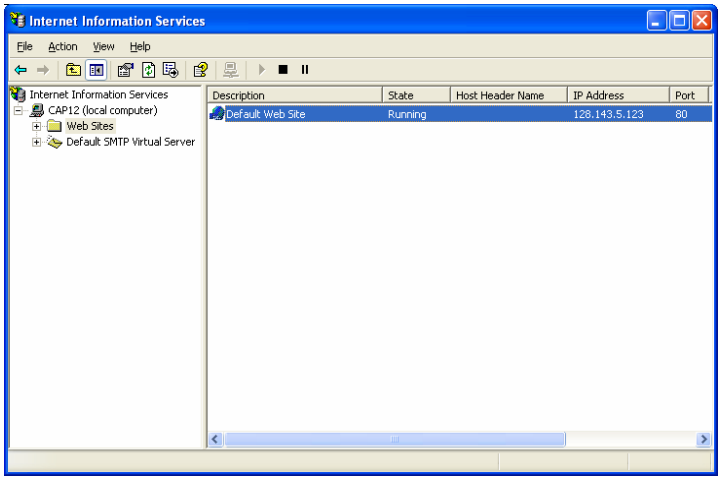


**Figure 13: Microsoft IIS Interface**

3.2 Select **Web Sites**
3.3 Right click on Default Website and Select the **Properties** option
3.4 Within Properties: Select **Home Directory** Tab
3.4.1 Select *"Content should come from a directory located on this computer"*
3.4.2 Input local directory path to GRASP folder. (example C:\GRASP)

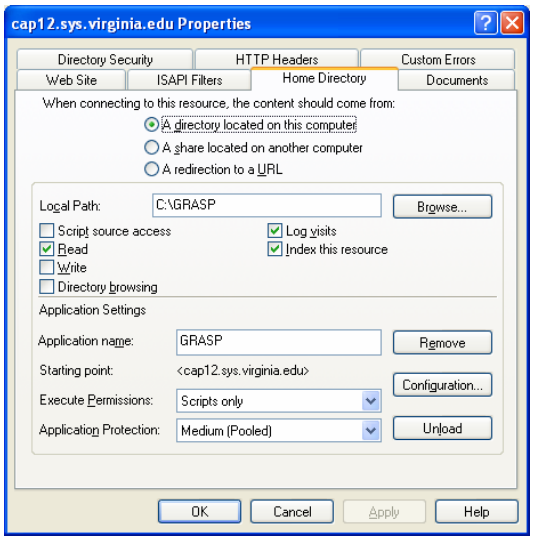


**Figure 14: Home Directory Screen**

3.5 Within Properties: Select **Web Site** tab

3.5.1 Change Description to an explanatory title. This step is optional; however the user may find it to be beneficial. (Recommend the site URL)

3.5.2 Assign the computer's IP address and TCP/SSL Port.

3.5.2.1 Assign local IP, but keep option to "(All Unassigned)"

3.5.2.2 Recommend TCP Port: 80

3.5.2.3 Recommend SSL Port: 443

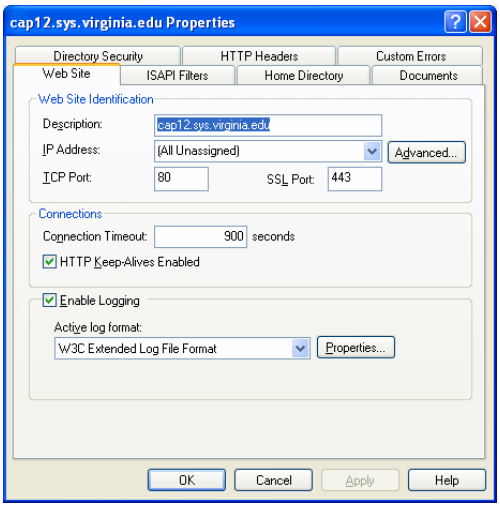


**Figure 15: Web Site Screen**

3.6 Within Properties: Select **Documents** Tab

3.6.1 Add Index.asp document

3.6.2 Use the ***Up*** arrow to move it to the top of the list

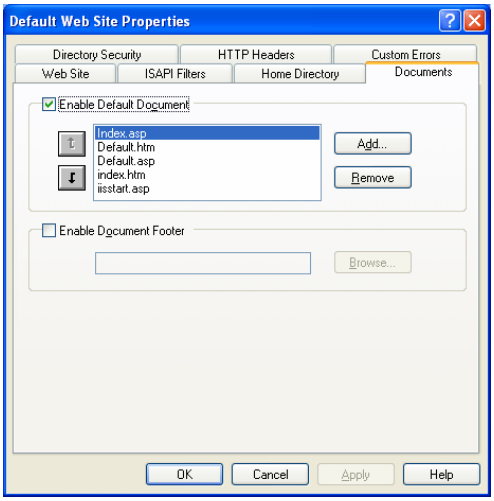


**Figure 16: Documents Screen**

3.6.3 At this point the user should be able to access the website and it should be navigable

**IMPORTANT:** Make sure the IIS web server is not restricting the size of ASP uploads. IIS 6 (Windows Server 2003) has a limit of 200 KB for ASP requests in general and file uploads in particular

3.7 To remove this limitation in IIS 6 you need to edit the Metabase file, which can be found at c:\Windows\System32\Inetsrv\MetaBase.xml.

3.7.1 Go to IIS and right click the server

3.7.2 Select Properties, and check the box "Allow changes to MetaBase configuration while IIS is running"

3.7.2.1 If after this step the metabase file is still locked, try turning off IIS or even restarting the machine in safe mode;

3.7.3 Open the file in an editor

3.7.3.1 The variable AspMaxRequestEntityAllowed limits the number of bytes in the page request (by default 200KB); change the value to 1073741824 (unlimited) or to a limit of your choice

3.7.3.2 Check whether the same variable shows up in other places in the file.

## Step Four: Installation of 3rd Party Software

This step will help you install and setup the necessary 3rd party software needed to run GRASP.

**IMPORTANT:**
Navigate to "ASP Components Install Files" directory within the GRASP directory copied in Step One.

4.1 Run the executable files contained in this file separately.
- 4.1.1 Install AspEasyZip. Follow on screen instructions for install and accept all default settings. This program allows for zipping and unzipping of uploaded and downloaded files.

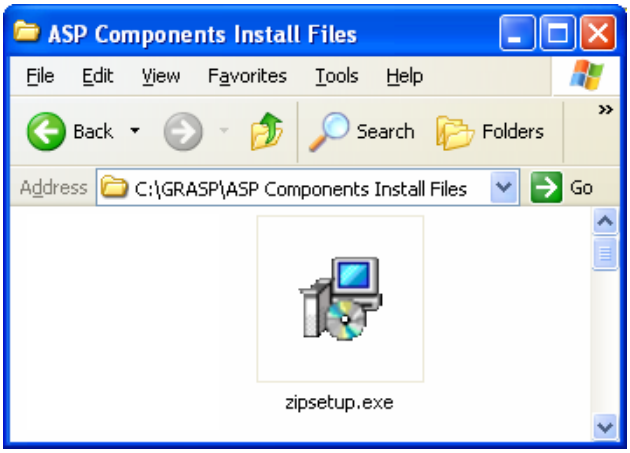


**Figure 17: ASP Components Install Files**

4.2 These executable files can also be accessed on the World Wide Web at:
- 4.2.1 Download and install AspEasyZip from:
  http://www.mitdata.com/AspEasy/zipsetup.exe (zipsetup)

4.3 Navigate to the XZip folder in the directory structure created in Step One. If it was left as recommended, the path is C:\GRASP\XZip
- 4.3.1 Within this folder is a batch file called Registering XZip.bat
- 4.3.2 Right click and select **Edit**
- 4.3.3 Input the correct directory structure to find XZip.dll
  (**It should be read as follows "regsvr32 C:\GRASP\XZip\XZip.dll")

4.4 The most recent SVG Viewer must also be installed from the Internet in order to use a computer to view the website pages effectively
- 4.4.1 This can be downloaded at
  http://www.adobe.com/svg/viewer/install/main.html

4.5 In order for the upload translator to work correctly the class of zip functions needs to be added to the java directory

4.5.1 Locate the file ZipFunctions.class in the GRASP directory. This file needs to be moved to C:\Windows\java\trustlib directory

## Step Five: Configuring Directory Security to Grant Write Permissions

5 This step helps to configure the directory security by managing the permissions granted on the server. There are two places on the server where "write" permissions must be given to the internet user: the GRASP_Database.mdb (for when users register for projects, etc.) and the writexsl.asp page. In order to accomplish this several steps must be taken.

5.1 Right click on the directory where the GRASP Database is located (this directory was created in Step One).
5.2 Select **Properties**
5.3 Within GRASP Database Properties, select the **Security Tab**

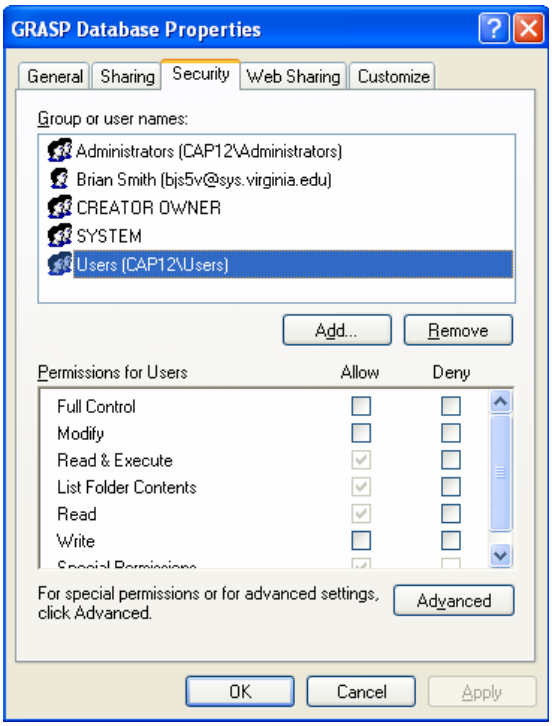


**Figure 18: Security Tab within Properties**

5.4 Add a new user to the group titled "Computer Device Name\IUSR_Computer Device Name"
5.4.1 "Computer Device Name" is the name of the computer on which the GRASP system is being setup.
5.4.2 An example is shown below where the computer name is CAP12 and the name of the Website chosen in step 2.5.1 is CAP12:
**"CAP12\IUSR_CAP12"**

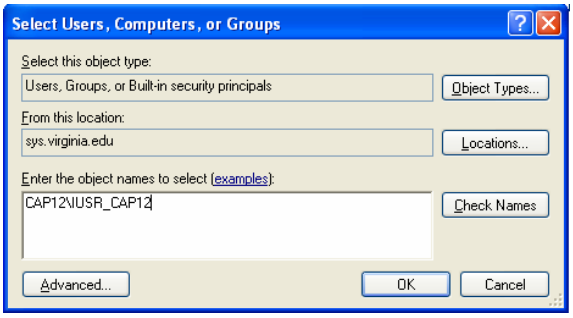


**Figure 19: Creation of a new user**

5.4.3 Allow write permissions for this new user.

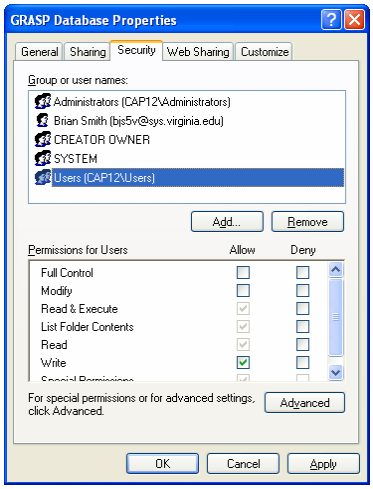


**Figure 20: Granting Write Permissions for the new user**

5.5 Repeat steps 4.1 – 4.4 for the writexsl.asp page which can be found under the Data subdirectory within the GRASP directory created in Step One (C:\GRASP\data)

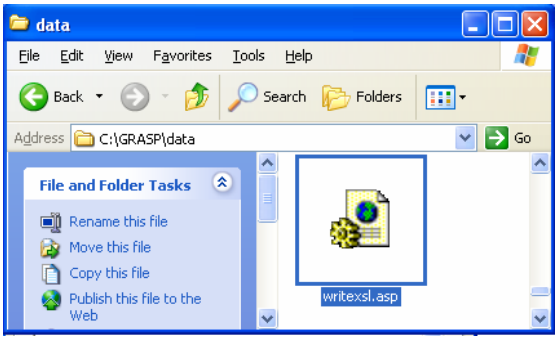


**Figure 21: Locating the writexsl.asp file**

**IMPORTANT:**
These steps must be taken for each directory or you will receive an error on the website that says that write permissions are not allowed.

## Step Six: Installation of SSL Security for the Website

***If you are already in possession of an SSL certificate, you may not need to undertake this step.*

This step breaks down the steps for installing SSL security for the website

6.1 Requesting a Certificate

**6.1.1** Open Internet Information Services (IIS) from **Control Panel/Administrative Tools**

6.1.2 Right click on the website created in Step Two

6.1.3 Select **Properties**

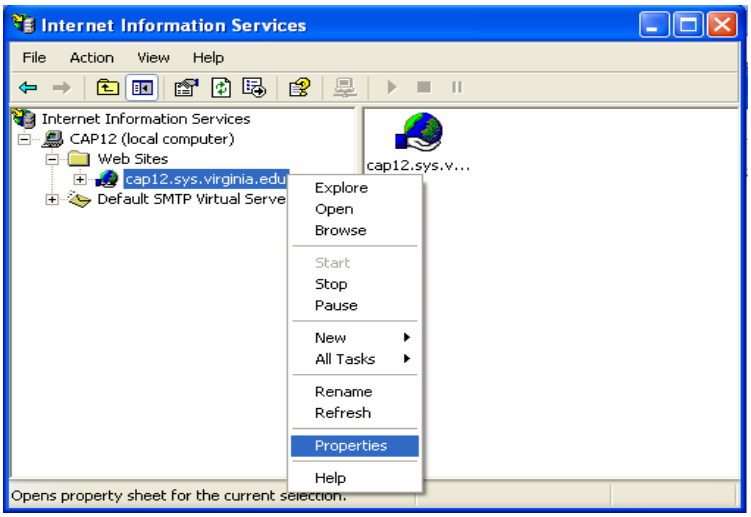


**Figure 22: Locating the Properties of the website**

6.1.4 Select the tab at the top labeled **Directory Security**

6.1.5 Under the section labeled Secure Communications, Click the **Server Certificate** button.

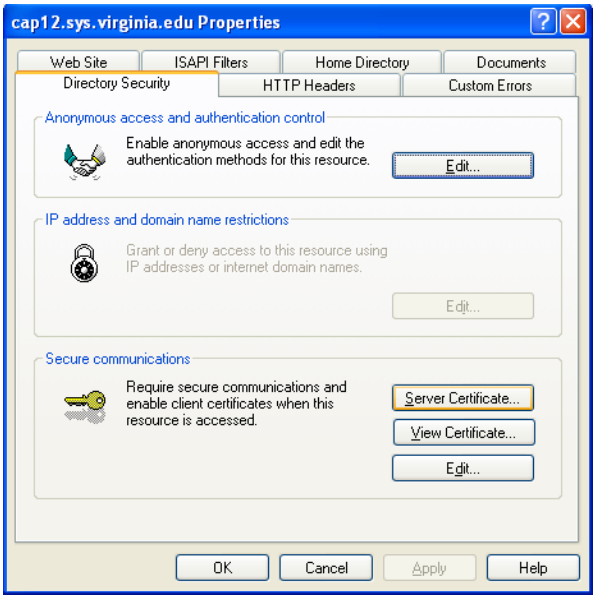


**Figure 23: Locating the Server Certificate button under Directory Security**

6.1.6 This opens a window that allows you to request a server certificate from a certificate authority. The wizard will take you through the steps and at the end will generate a file that you will need to submit to a certificate authority. Remember where the file is saved.

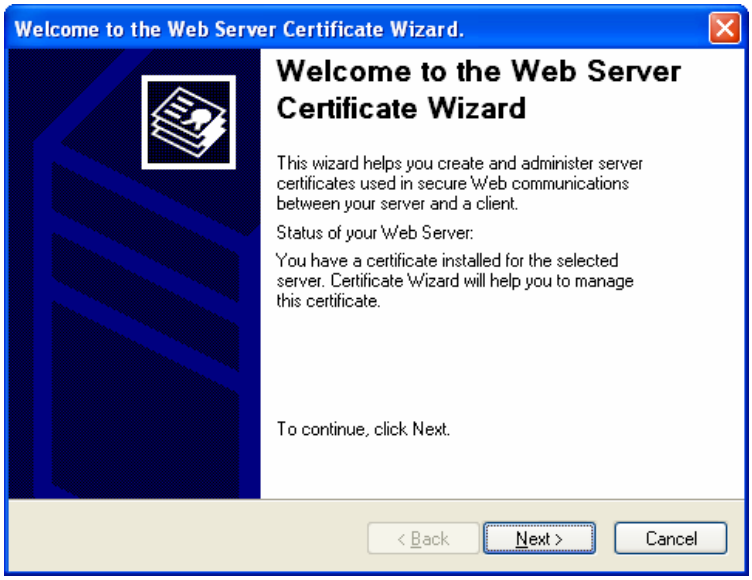


**Figure 24: The Web Server Certificate Wizard**

6.1.7 Now, you must apply for an SSL certificate from a Certificate Authority (CA).

6.1.7.1 We have traditionally used FreeSSL.com. In order to use this company, you will be asked to provide them with the data in the file saved in Step 5.1.6.

***6.1.7.2*** When you are finished, they will provide you with an email back that will contain code similar to that in certreq.txt that you will use. ***Keep this code.***

6.2 Installing a Certificate

**6.2.1** Open IIS from **Control Panel/Administrative Tools**

6.2.2 Right click on the website created in Step Two

6.2.3 Select **Properties**

6.2.4 Select the tab at the top labeled **Directory Security**

6.2.5 Under the section labeled Secure Communications, Click the **Server Certificate** button.

6.2.6 This will now walk you through the same Web Server Certificate Wizard as in Step 5.1, which will allow the new certificate received from the CA to be installed. Follow the on-screen guide to install the certificate.

## Step Seven: Scheduling Upload and Download Tasks to Run

This step effectively automates the task of performing the actual uploading and downloading files to and from GRASP. Using the user interface on the website, the user will be able to choose the files for upload or download, but the translation is done in the background using these scheduled tasks. It is up to the administrator of GRASP to determine how often the tasks need to be run.

7.1 To schedule a new task open **Start/Programs/Accessories/Systems Tools/Scheduled Tasks**

7.2 Double-click **Add Scheduled Task**.

7.3 Follow the instructions in the Scheduled Task Wizard. When asked to "click the program you want Windows to run", Select **Browse.**


**Figure 25: Browse window for Scheduled Task**

7.4 Navigate to the GRASP directory created in Step One. Select UploadTranslator.vbs

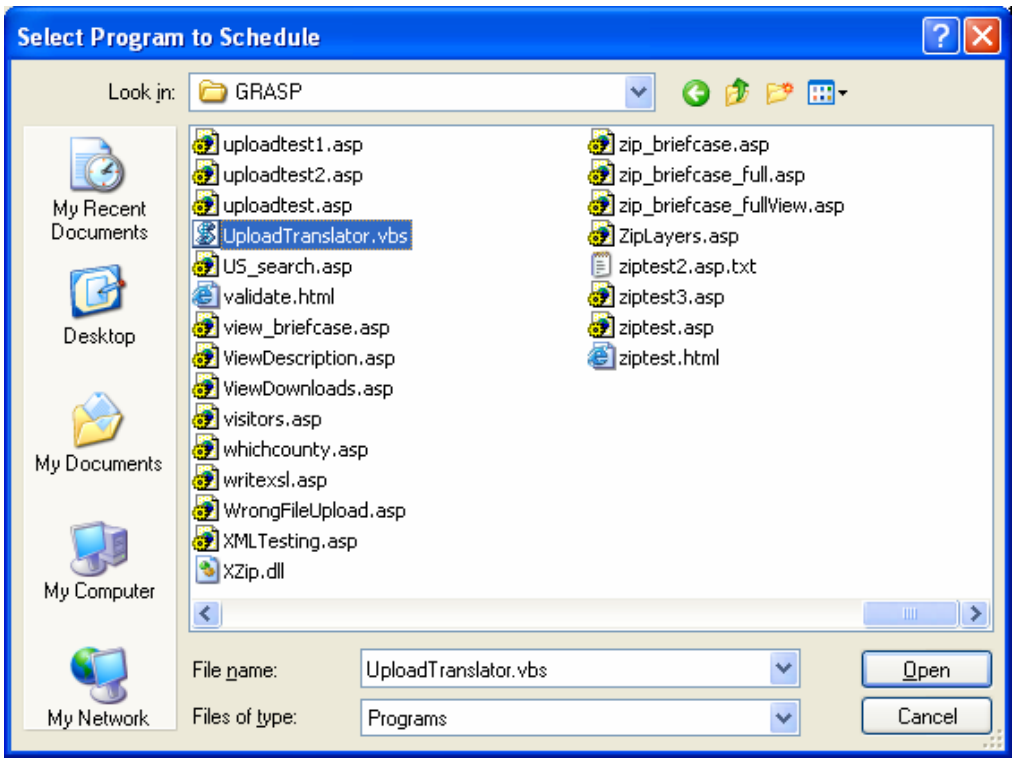


**Figure 26: Scheduling UploadTranslator to be Run**

7.5 Follow the Scheduled Task Wizard to set up specific time details about how often and when to run the specified task. Select **Finish** when complete.

7.6 Repeat steps 6.1-6.5 for the script file DownloadTranslator.vbs also found under the GRASP directory created in Step One.